

APPENDIX F

General Survey Methods for Covered Species

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As described in Chapter 4, the Imperial Irrigation District (IID) will conduct baseline surveys for covered species and periodic ongoing surveys. This appendix describes the general methods that IID will use to survey for covered species. Because the number of sample points and location of sample points for the covered species surveys will be influenced by results of the drain and desert habitat surveys, the Habitat Conservation Plan (HCP) Implementation Team (IT) will finalize procedures for the covered species surveys after completion of the habitat surveys.

Covered Species Surveys

Drain Habitat

Covered species potentially using drain habitat include birds, amphibians, and mammals. The amphibians associated with drain habitat are the lowland leopard frog and Colorado River toad, and the mammals associated with drain habitat are Colorado River hispid cotton rat and the Yuma hispid cotton rat. These four species are addressed separately and individually under Other Species–1 and 2 (Section 3.9). Survey protocols for these species would be developed as part of the study programs implemented under Other Species–1 and 2. Therefore, the covered species surveys for drain habitat focus on birds. Two different survey methods will be used for birds in drain habitat: call surveys and point counts. These two survey methods are described below.

Call Surveys

Call surveys will be used to survey for Yuma clapper rails, California black rails, and least bitterns. Standard survey protocols have been developed for Yuma clapper rails and California black rails. The protocols are similar and combined here into one protocol. The HCP IT may modify the survey protocol for local conditions or in response to new information.

For surveys of the drains, survey points will be randomly distributed in appropriately vegetated areas of the drains. Within the created managed marsh, survey points will be distributed on a 100-meter (328 foot) grid system (Conway et al., 2001). In drains, survey points will be distributed linearly. Survey points will be spaced about 100 meters (328 feet) apart (Conway et al., 2001). The number of survey points will depend on the acreage of drain vegetation and the created managed marsh. Conway et al. (2001) recommend one point per one hectare of habitat (i.e., 1 point per 2.47 acres). This recommended density will be used to determine the number of survey points with modification as necessary to maintain adequate spacing among points. The location of the survey points will be recorded so they can be incorporated into a geographic information system (GIS) and plotted on a map.

Surveys will be initiated 30 minutes before sunrise and completed no later than 3 hours after sunrise. Surveys will not be conducted if the wind speed is greater than 10 mph. Three

surveys will be conducted in a year, one each during March, April, and May. For black rails, Conway et al. (2001) recommend conducting the first survey during March 21 – 30, the second survey during April 21 – 30, and the third survey during May 21 – 30. These timings are also appropriate for Yuma clapper rails and will be used unless the HCP IT identifies a more appropriate site-specific survey schedule.

Following the protocol developed by Conway et al. (2001), at each survey point, the observers will first wait quietly for 3 minutes, recording all birds seen or heard. Following this quiet period, observers will broadcast recorded calls of rails and bitterns over a 3-minute period. The tape used to broadcast calls will include 30 seconds of calls interspersed with 30 seconds of silence. The 30 seconds of calls will consist of calls interspersed with 5 seconds of silence. Conway et al. (2001) provide additional information on the broadcast call period of the surveys. Observers will record each individual detected and indicate when each individual is detected during the initial 3-minute passive period and/or during any of the 1-minute broadcast periods. Observers also will estimate whether the response is within or beyond 50 meters of the survey point.

Point Counts

Point counts will be used to detect the remaining covered bird species associated with drain habitat. The point counts will be conducted following the protocol of Ralph et al. (1993, 1995) with modifications based on Guers and Flannery (2000). Based on these protocols, counts at each point will last 5 minutes. The species and number of individuals of all birds seen or heard during this period will be recorded. Birds detected within a 50-meter radius of the point will be recorded separately from those detected farther away and those observed flying overhead. In addition to recording birds observed, the surveyors will indicate whether a bird was observed using the drain vegetation. The survey points established for the call surveys will be used for the point counts with the additional constraint that points must be at least 250 meters apart (Guers and Flannery, 2000). Counts will be conducted three times during each of the three seasons (spring: March – June; fall: October – November; and winter: December – February). Counts will be separated by at least 2 weeks.

Desert Habitat

Covered species potentially occurring in desert habitat in the HCP area include birds, amphibians, reptiles, mammals, and insects. However, nine of the species potentially occurring in desert habitat are addressed separately and individually under Other Species—1 and 2. These species are:

- Cheeseweed moth lacewing
- Andrew's scarab beetle
- Banded gila monster
- Jacumba little pocket mouse
- Flat-seeded spurge
- Foxtail cactus
- Munz's cactus
- Orcopia sage
- Orcutt's aster

Because these species are addressed separately, they were not considered in developing the survey methods. Survey protocols for these species would be developed as part of the study

programs implemented under Other Species—1 and 2. The survey protocols that will be used to detect covered birds, amphibians, and mammals associated with desert habitat are described subsequently.

Birds

Point counts will be used to detect birds in desert habitat following the same protocol as described for drain habitat. The location and number of points will be determined based on the desert habitat survey. A stratified random sampling approach will be used to distribute points among the various habitats identified during the habitat surveys. Points will be located at least 250 meters apart (Guers and Flannery, 2000).

The point counts will be conducted three times during each of the three seasons (spring: March – June; fall: October – November; and winter: December – February). Counts will be separated by at least 2 weeks.

Amphibians

The only amphibian covered by this HCP with the potential to occur in desert habitat is the Couch's spadefoot toad. Surveys for Couch's spadefoot toad will be conducted after rainstorms when these toads breed in pools formed by rain. Following heavy rainstorms, IID will survey the rights-of-way of the All American Canal (AAC) and East Highline Canal. Pools that could be used by Couch's spadefoot toads will be identified and mapped. The presence/absence of Couch's spadefoot toads and tadpoles also will be noted for each pool.

Reptiles

Four different survey methods will be used to survey for reptiles in desert habitat: pitfall traps, area searches, desert tortoise protocols, and flat-tailed horned lizard protocols. The HCP IT may modify survey methods as appropriate to survey most effectively and efficiently for the covered reptile species.

Pitfall Traps

Pitfall traps will be used to survey for western chuckwalla and Colorado Desert fringe-toed lizards. Used with drift fences, pitfall traps are a preferred method for detecting many reptiles. Drift fences intercept animals moving along the ground and direct them into the pitfall trap. Pitfall traps and fences will be established at each of the points used for point count surveys of birds. Traps will be run for 3 consecutive nights at each location. The traps will be checked and closed soon after sunrise each day. Pitfall trapping will be conducted once each month during March, April, May, June, October, and November.

Area Searches

Some reptile species are not sampled effectively with pitfall trapping. Thus, area searches will be used to increase the likelihood of detecting covered reptile species. Area searches consist of systematically searching a specified area for animals (Heyer et al., 1994). Area searches will be conducted in areas of suitable habitat for western chuckwalla and Colorado Desert fringe-toed lizards as determined by HCP IT. Plots 25 meters by 25 meters will be established in areas considered most likely to contain covered reptiles (Heyer et al., 1994). This area will be intensively searched for covered reptile species or their sign. Area search

surveys will be conducted each month during March, April, May, June, October, and November.

Desert Tortoise

Surveys for desert tortoise will be conducted following the standard protocols for this species. The survey protocol for desert tortoise consists of searching specified transects for signs of desert tortoise. Surveys will be conducted between March 25 and May 31. Transects for desert tortoise surveys will be established in areas of suitable habitat for desert tortoise as determined by the HCP IT.

Flat-Tailed Horned Lizard

Surveys for flat-tailed horned lizards will be conducted following the standard protocols for this species with any modifications deemed appropriate by the HCP IT. The current survey protocol for flat-tailed horned lizards is as follows. Transects consisting of parallel, linear routes will be evenly spaced in areas of suitable habitat for flat-tailed horned lizards as determined by the HCP IT. The number and distribution of transects will be such that a minimum of 10 hours of survey effort will be expended per 640 acres surveyed. Each transect will be traversed by a single worker. On each transect, either scat or lizards will be surveyed. The location of transects and each flat-tailed horned lizard and scat will be recorded. However, all observations of horned lizards or scat will be noted regardless of whether the transect is a scat or lizard transect. Scat and lizard survey routes will be alternated or randomly assigned to the transects at the HCP IT's discretion. Three surveys will be conducted, spaced at least 2 weeks apart during April through September. Lizard surveys will be conducted when surface temperatures in the sun range from 35° to 50°C. Scat surveys will not be conducted for at least 12 days after heavy rains, hailstorms, or strong winds of an intensity sufficient to move considerable amounts of sand across roads or to damage signs and trees.

In addition, road surveys will be conducted by driving all roads in or near the areas where transects are situated and recording observations of horned lizards. Surveyors will drive very slowly (no faster than 10 mph). Three road surveys will be conducted during April through September. Roads will be driven in the morning when substrate temperatures adjacent to the roads and in the sun range from 35° to 50°C. The location of each flat-tailed horned lizard observed will be recorded.

Mammals

Nelson's bighorn sheep is the only covered mammal species potentially occurring in desert habitat in the HCP area. Surveys for Nelson's bighorn sheep will be conducted in conjunction with the desert tortoise and/or flat-tailed horned lizard surveys. During the desert tortoise and flat-tailed horned lizard surveys, the surveyors will also search for and record signs of bighorn sheep presence. Because bighorn sheep could occur near the AAC at times other than March 25 through May 31, when desert tortoise surveys are conducted, surveys for bighorn sheep also will be conducted during the summer (July – September), fall (October – November), and winter (December – February).

References

Conway, C.J., C. Sulzman, and B.E. Raulston. 2001. *Population Trends, Distribution, and Monitoring Protocols for California Black Rails*. Draft Final Report. AGFD Heritage Program IIPAM Grant #I99010. Submitted to Arizona Game and Fish Department, California Department of Fish and Game and U.S. Bureau of Reclamation. July 1.

Guers, S. L. and M. E. Flannery. 2000. "Landbird Migration and Monitoring at the Salton Sea: 1999 Field Season." In *Avifauna of the Salton Sea: Abundance, Distribution, and Annual Phenology*. USEPA.

Heyer, W. R., M. A. Donnelly, R. W. McDiarmid, L. C. Hayek, and M. S. Foster. 1994. *Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians*. Smithsonian Institution Press, Washington, D.C.